RF CHANNEL CALIBRATION FOR NON-LINEAR WAVEFORMS

ABSTRACT OF THE DISCLOSURE

A system, method, and computer program product that performs self-calibration of pulse-compression radar signals. The system includes an antenna, a receiver, a transmitter, and a radar signal processor. Under normal (non-calibration) operation the radar transmitter generates a pulse compression waveform and transmits it via the antenna. Any reflections from this waveform are detected by the same antenna and processed by the receiver. The received radar signal then undergoes pulse compression followed by more mode-specific processing (windshear, weather, ground map, etc.) by the radar processor. During calibration, the radar transmitter generates a similar pulse compression waveform (i.e., calibration pulses), but the calibration pulses bypass the antenna and go directly to the receiver via a "calibration path" built into the hardware. The resulting calibration pulses are used to generate a calibration filter. The calibration filter is applied to the received radar signals in the frequency domain either before or after pulse compression.